

REMARKS/ARGUMENTS

Claims 1-25 are pending. By this Amendment, claims 1-25 are amended. Support for the amendments to claim 1 can be found, for example, in the present specification at page 33, line 24 to page 34, line 10, in FIG. 7, and in original claim 1. No new matter is added. In view of the foregoing amendments and following remarks, reconsideration and allowance are respectfully requested.

Personal Interview

Applicants appreciate the courtesies extended to Applicants' representative by Examiner Edell during the July 31, 2008 Personal Interview. Applicants' separate record of the substance of the interview is incorporated in the following remarks.

Allowable Subject Matter

Applicants thank the Examiner for the indication in the Office Action that claims 23-25 recite allowable subject matter.

Rejection Under 35 U.S.C. §101

The Office Action rejects claims 5, 6, 11-18 and 19-25 as reciting unpatentable subject matter under 35 U.S.C. §101. Applicants respectfully traverse the rejection.

As agreed during the Personal Interview, claims 5, 6, 11-18 and 19-25 recite patentable subject matter. *See* August 5, 2008 Interview Summary, Continuation Sheet. Accordingly, reconsideration and withdrawal of the rejection are respectfully requested.

Rejection Under 35 U.S.C. §112, Second Paragraph

The Office Action rejects claims 1-25 as indefinite under 35 U.S.C. §112, second paragraph. Applicants respectfully traverse the rejection.

With respect to claims 2 and 3, the Office Action asserts that the term "a first tension which two-dimensionally supports the planar tension structure" is indefinite. *See* Office Action, page 3. In particular, the Office Action inquires as to how an object can be supported two dimensionally by a tension. *See* Office Action, page 3. In embodiments of the present invention, a cloth spring material 68 forms a planar tension structure. The cloth spring material 68 would not have planar shape, unless tension was applied in two dimensions corresponding generally to the front-rear direction and left-right direction of the seat. *See, e.g.,* present specification, FIG. 1.

With respect to claim 3, the Office Action asserts that the term "a pseudo normal line direction" is indefinite. *See* Office Action, page 3. Applicants submit that the term "pseudo normal line direction" is defined within the claims. For example, in claim 3, "pseudo normal line direction" is defined as "a direction along a vertical plane including a front-rear direction of the seat." The Office Action further inquires as to how "a vertical line [can] contain the horizontal front-rear direction." *See* Office Action, page 3. Applicants note that claim 3 does not indicate that a vertical line contains the front-rear direction, but rather that a vertical plane contains the front-rear direction. A vertical plane can certainly intersect a horizontal line, such as a line defining the front-rear direction of a seat.

With respect to claim 4, the Office Action asserts that the term "at a time of sitting, pulls a rear end of the planar tension structure rearward while moving the rear end forward" is indefinite. *See* Office Action, page 3. In particular, the Office Action inquires as to how "the elastic member move[s] the structure rearward and forward at the same time? It is in fact the action of sitting that pulls the structure forward and not the elastic structure." *See* Office

Action, page 3. In embodiments of the present invention, when a user sits, a moveable frame portion 42 that supports the cloth spring material 68 moves forward while a torsion bar 62 continues to apply a rearward tension. *See, e.g.*, present specification, page 32, lines 2 to 9; FIG. 7. That is, an elastic member pulls rearward, even as the planar tension structure moves forward.

With respect to claims 5, 7, 11, 12, 17, 18, and 19, the Office Action asserts that terms such as "vicinities of beneath ischial tuberosities of a seated person," render the claims indefinite. *See* Office Action, pages 3 to 4. As agreed during the Personal Interview, it is perfectly suitable to define a structure with reference to the attributes of a typical user. A skilled artisan could readily discern whether a particular seat falls within or outside of the scope of claims, so the metes and bounds of the claims are clear.

With respect to claim 10, the Office Action asserts that the limitation "structured so as to make integral a three-dimensional tension structure and a two-dimensional tension structure" is indefinite. *See* Office Action, page 4. The claim language makes plain that a three-dimensional tension structure and a two-dimensional tension structure are provided together at least at a central portion of the seat in a right-left direction. This structure is exemplified in embodiments described in the present specification. For example, in embodiments, a two-dimensional tension structure 94a and a three-dimensional tension structure 94b are sewn together centrally between the side frames 90 in the left-right directions. *See, e.g.*, present specification, page 48, lines 19 to 23.

For the foregoing reasons, claims 1-25 are definite. Accordingly, reconsideration and withdrawal of the rejection are respectfully requested.

Rejections Under 35 U.S.C. §102

A. Fujita

The Office Action rejects claims 1-6 and 17 under 35 U.S.C. §102(b) over U.S. Patent No. 6,302,487 to Fujita et al. ("Fujita"). Applicants respectfully traverse the rejection.

Claim 1

Claim 1 recites " [a] seat comprising: a seat frame including a sitting portion frame and a back portion frame; a planar tension structure attached to the sitting portion frame or the back portion frame; and an elastic supporting structure that supports the planar tension structure between the sitting portion frame or the back portion frame and the planar tension structure such that directions of tensions acting on the planar tension structure extend continuously in three dimensions" (emphasis added). Fujita does not disclose or suggest such a seat.

With respect to claim 1, the Office Action asserts that Fujita discloses a seat including a seat cushion frame 16, a net 8 and a plurality of metal springs 52, 54 connecting the net 8 to the seat cushion frame 16. *See* Office Action, page 4; Fujita, column 10, lines 1 to 15, FIGS. 16 and 17. The Office Action asserts that this structure would apply tensions to the net 8 in three dimensions. *See* Office Action, page 4.

As indicated above, claim 1 requires an elastic supporting structure (e.g., movable frame portion 42 and torsion bar 62) that supports a planar tension structure (e.g., cloth spring material 68) between the sitting portion frame or the back portion frame and the planar tension structure such that directions of tensions acting on the planar tension structure extend continuously in three dimensions. In the seat of Fujita, tension may be applied to the net 8 in the front-back direction using a plurality of metal springs 52. When such springs 52 are employed, tension increases along a line between each respective spring 52 and the seat

cushion frame 16, but remains weak to the right and left of that line. This weakness can be compensated for by using a plurality of springs 52 and/or by applying tension in the left-right direction using one or more springs 54. However, only a limited number of springs can be applied due to the size of the springs. Accordingly, regardless of the size of the springs, the tensions applied using such springs will be discontinuous. This phenomenon also applies with respect to efforts to create tension in the up-down direction.

The elastic supporting structure of claim 1, by contrast, provides tension to a planar tension structure continuously. This is possible, for example, by employing a movable frame portion 42 and a torsion bar 62 as an elastic supporting structure. The movable frame portion 42 and a torsion bar 62 apply tension in a manner that is equivalent to using an infinite number of coil springs. Accordingly, a continuous tension is possible.

When a person sits in a seat, such as described above, for example, the torsion bar 62 rotates forward and the planar tension structure sinks. The planar tension structure is not restrained in the left-right direction (as is the case with the springs 54 of Fujita), so the weight of the person draws the left and right edges of the planar tension structure in. Accordingly, although applied continuously, the tension is higher where the weight of the person is focused and decreases at locations away from that point. That is, the tension becomes three dimensional and continuous. This arrangement allows pressure around ischial tuberosities of the person (i.e., where the weight of the person is applied most heavily) to be dispersed, improving seating comfort.

As Fujita fails to disclose or suggest the elastic supporting structure of claim 1, Fujita fails to disclose or suggest each and every feature of claim 1.

Claim 17

Claim 17 recites "[a] seat comprising: a sitting portion frame; a cushion material including a lower layer portion stretched in a front-rear direction on the sitting portion frame, and a surface layer portion layered on the lower layer portion and stretched on the sitting portion frame; and a tension adjusting mechanism that connects connection positions of the lower layer portion in vicinities of beneath ischial tuberosities of a seated person to portions of the sitting portion frame that are lower than the connection positions, wherein the tension adjusting mechanism generates tensile force at a time of sitting" (emphasis added). Fujita does not disclose or suggest such a seat.

With respect to claim 17, the Office Action asserts that Fujita discloses a seat including a seat cushion frame 16, a net 8 (including an upper net 8a and a lower net 8b) and a plurality of metal springs 52, 54 connecting the net 8 to the seat cushion frame 16. *See* Office Action, page 4; Fujita, column 10, lines 1 to 15, FIGS. 16 and 17. The Office Action asserts that the metal springs 52, 54 connect the lower net 8b to a lower portion of the seat cushion frame 16. *See* Office Action, page 6.

As indicated above, claim 17 requires a tension adjusting mechanism (e.g., extension coil springs 80) that connects connection positions (e.g., on the spring hanging member 74) on the cloth spring material (e.g., cloth spring material 68) and that are in the vicinity of locations beneath ischial tuberosities of a seated person, with portions of the fixed frame (e.g., protective pipe 64) that are rearward and downward from the connection positions. The springs 52 of the seat of Fujita do not connect to the net 8 anywhere near the locations beneath ischial tuberosities of a seated person. Rather, the springs 52 of the seat of Fujita connect to the net 8 at a location rearward of the intersection between the seat portion of the net 8 and back portion of the net 8.

As Fujita fails to disclose or suggest the tension adjusting mechanism of claim 17, Fujita fails to disclose or suggest each and every feature of claim 17.

\* \* \* \*

As explained, claims 1 and 17 are not anticipated by Fujita. Claims 2-6 depend from claim 1 and, thus, also are not anticipated by Fujita. Accordingly, reconsideration and withdrawal of the rejection are respectfully requested.

B. Arnold

The Office Action rejects claim 18 under 35 U.S.C. §102(b) over U.S. Patent No. 3,462,196 to Arnold et al. ("Arnold").<sup>1</sup> Applicants respectfully traverse the rejection.

Claim 18

Claim 18 recites "[a] seat comprising: a back portion frame; a cushion material including a lower layer portion stretched on the back portion frame at a portion corresponding to a region between a lower side of shoulder blades and a lumbar vertebrae region of a seated person, and a surface layer portion layered on the lower layer portion and stretched on the back portion frame; and a tension adjusting mechanism that connects at least one connection position of the lower layer portion that is located further upward than beneath the shoulder blades and a connection position further downward than the lumbar vertebrae region to the back portion frame, wherein the tension adjusting mechanism generates tensile force which pulls the lower layer portion rearward at a time of sitting" (emphasis added). Arnold does not disclose or suggest such a seat.

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<sup>1</sup> The Office Action does not explicitly include a rejection of claim 18 over Arnold. However, the rejection at page 6, paragraph 16 of the Office Action appears to be duplicative of the rejection at page 4, paragraph 1 of the Office Action. Moreover, the discussion of the rejection at page 6, paragraph 16 of the Office Action (at page 7, paragraph 17) makes reference only to claim 18 and Arnold. Accordingly, Applicants have assumed that claim 18 was intended to be rejected over Arnold.

With respect to claim 18, the Office Action asserts that Arnold discloses a seat including a frame 2, a cushion (including cross wires 20 stretched on the frame 2 and a cover sheet 52) and springs 34 connecting the cross wires 20 to the frame 2 at a location above the shoulder blades. *See* Office Action, page 7; Arnold, column 3, line 65 to column 4, line 10; FIG. 1.

As indicated above, claim 18 requires a tension adjusting mechanism (e.g., extension coil springs 98) that connects a connection position of the lower layer portion (e.g., lower cushion material 94) that is located further upward than beneath the shoulder blades and a connection position further downward than the lumbar vertebrae region to the back portion frame (e.g., wires 92A, 92C). *See, e.g.*, present specification, FIG. 1 (locations of springs 98). The tension mechanism pulls the lower layer portion rearward.

At the outset, Arnold does not disclose a cushion including a lower layer portion stretched on a frame, as recited in claim 18. The portion of the seat of Arnold asserted to correspond to the lower layer portion of claim 18 (*see* Office Action, page 7) is, in fact a part of a decking panel 10 that is not stretched on a frame. Moreover, while the seat of Arnold includes springs 34, 38, these springs do not apply a rearward tension to the decking panel 10 as provided in claim 1.

As Arnold fails to disclose or suggest the lower layer portion and the tension adjusting mechanism of claim 18, Arnold fails to disclose or suggest each and every feature of claim 18.

\* \* \* \*

As explained, claim 18 is not anticipated by Arnold. Accordingly, reconsideration and withdrawal of the rejection are respectfully requested.



Rejections Under 35 U.S.C. §103

A. Fujita

The Office Action rejects claim 22 under 35 U.S.C. §103(a) over Fujita.<sup>2</sup> Applicants respectfully traverse the rejection.

Claim 17

Fujita fails to disclose or suggest each and every feature of claim 17 for at least the reasons discussed above.

Claim 18

Claim 18 is not rejected over Fujita. Accordingly, to the extent that claim 22 depends from claim 18, the rejection is improper.

Claim 19

Claim 19 recites "[a] seat comprising: a seat frame that includes a fixed frame, and a movable frame provided at a rear portion of the fixed frame so as to be able to move in a front-rear direction; a cushion material that includes a cloth spring material with a front end portion that is anchored at the fixed frame and a rear end portion is anchored at the movable frame, and a surface layer portion layered on the cloth spring material and stretched on the fixed frame; an urging member provided between the fixed frame and the movable frame, and, at a time of sitting, that urges the movable frame rearward and adds tension to the cloth spring material; and a tension adjusting mechanism that connects connection positions which are at the cloth spring material and that are in vicinities of beneath ischial tuberosities of a

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<sup>2</sup> The Office Action rejects claim 22 over Fujita at page 7, paragraph 19 of the Office Action. Applicants note that claim 22 depends from claim 17, 18 or 19. In setting forth the grounds for the rejection, there is an assertion that Fujita discloses the features of claim 17 (*see* Office Action, pages 7 to 8, paragraph 20), but no indication of how Fujita discloses the features of claims 18 and 19. Moreover, nowhere in the Office Action is claim 18 rejected over Fujita.

seated person and that are further outward and rearward than beneath the ischial tuberosities to portions of the fixed frame that are further rearward and downward than the connection positions, wherein the tension adjusting mechanism generates tensile force at the time of sitting" (emphasis added). Fujita does not disclose or suggest such a seat.

With respect to claim 19, the Office Action asserts that Fujita discloses a seat including a seat cushion frame 16, a net 8 and a plurality of metal springs 52, 54 connecting the net 8 to the seat cushion frame 16. *See* Office Action, page 4; Fujita, column 10, lines 1 to 15, FIGS. 16 and 17. The Office Action asserts that this structure would apply a tensile force at the time of sitting. *See* Office Action, page 12.

As indicated above, claim 19 requires that a rear end portion of a cloth spring material (e.g., cloth spring material 68) is anchored to a movable frame (e.g., movable frame portion 42) that can move in a front-rear direction. In the seat of Fujita, the rear end portion of the net 8 is anchored via the tension members 44 to the seat back frame 20. *See* Fujita, column 9, lines 36 to 42. The portion of the seat back frame 20 in the seat of Fujita to which the net 8 is anchored is not a movable frame that can move in a front-rear direction.

Claim 19 further requires an urging member (e.g., torsion bar 62) provided between the fixed frame (e.g., frame pipe 30) and the movable frame (e.g., movable frame portion 42), urging the movable frame rearward. As indicated above, the portion of the seat back frame 20 in the seat of Fujita to which the net 8 is anchored is not movable, and there are no urging members acting to move the seat back frame 20 rearward.

Claim 19 still further requires a tension adjusting mechanism (e.g., extension coil springs 80) that connects connection positions (e.g., on the spring hanging member 74) on the cloth spring material (e.g., cloth spring material 68) and that are in the vicinity of locations beneath ischial tuberosities of a seated person, but that are further outward and rearward than the locations, with portions of the fixed frame (e.g., protective pipe 64) that are rearward and

downward from the connection positions. The springs 52 of the seat of Fujita do not connect to the net 8 anywhere near the locations beneath ischial tuberosities of a seated person.

Rather, the springs 52 of the seat of Fujita connect to the net 8 at a location rearward of the intersection between the seat portion of the net 8 and back portion of the net 8.

As Fujita fails to disclose or suggest the movable frame, the urging member, or the tension adjusting mechanism of claim 19, Fujita fails to disclose or suggest each and every feature of claim 19.

\* \* \* \*

As explained, claims 17 and 19 would not have been rendered obvious by Fujita. To the extent that claim 22 depends from claims 17 and 19, claim 22 also would not have been rendered obvious by Fujita. Accordingly, reconsideration and withdrawal of the rejection are respectfully requested.

B. Fujita and Karg

The Office Action rejects claim 7 under 35 U.S.C. §103(a) over Fujita in view of U.S. Patent No. 2,633,184 to Karg ("Karg"). Applicants respectfully traverse the rejection.

Claim 1

Fujita fails to disclose or suggest each and every feature of claim 1 for at least the reasons discussed above. Karg does not remedy the deficiencies of Fujita. Karg is cited for its alleged disclosure of a spring attached to a rear outer portion of a seat. *See* Office Action, page 8. However Karg, like Fujita, fails to disclose or suggest the elastic supporting structure of claim 1. Accordingly, the combination of references fails to disclose or suggest each and every feature of claim 1.

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As explained, claim 1 would not have been rendered obvious by Fujita and Karg. Claim 7 depends from claim 1 and, thus, also would not have been rendered obvious by Fujita and Karg. Accordingly, reconsideration and withdrawal of the rejection are respectfully requested.

C. Fujita and Granger

The Office Action rejects claims 8 and 12-16 under 35 U.S.C. §103(a) over Fujita in view of U.S. Patent No. 199,535 to Granger ("Granger"). Applicants respectfully traverse the rejection.

Claim 1

Fujita fails to disclose or suggest each and every feature of claim 1 for at least the reasons discussed above. Granger does not remedy the deficiencies of Fujita. Granger is cited for its alleged disclosure of a spring and plate structure. *See* Office Action, page 9. However Granger, like Fujita, fails to disclose or suggest the elastic supporting structure of claim 1. Accordingly, the combination of references fails to disclose or suggest each and every feature of claim 1.

Claim 12

Claim 12 recites "[a] seat comprising: a seat frame having a sitting portion frame and a back portion frame; a cushion material including a two-dimensional knit fabric or a three-dimensional solid knit fabric stretched at the sitting portion frame or the back portion frame; and a tension adjusting mechanism that adjusts tension such that force in a pushing direction occurs at a region of the cushion material that a specific region of a human body pushes at a time of sitting" (emphasis added). Fujita does not disclose or suggest such a seat.

With respect to claim 12, the Office Action asserts that Fujita discloses a seat including a seat cushion frame 16, a net 8 and a plurality of metal springs 52, 54 connecting the net 8 to the seat cushion frame 16. *See* Office Action, page 4; Fujita, column 10, lines 1 to 15, FIGS. 16 and 17. The Office Action asserts that this structure would apply force in a pushing direction at a region of the net 8 pushed by a human body pushes at a time of sitting. *See* Office Action, page 9.

As indicated above, claim 12 requires a tension adjusting mechanism (e.g., extension coil springs 80) that adjusts tension such that force in a pushing direction occurs at a region of the cushion material (e.g., cloth spring material 68) that a specific region of a human body pushes at a time of sitting. For example, when a person sits, her weight applies a downward force on the cushion material in the vicinity of her ischial tuberosities. According to claim 12, the tension adjusting mechanism would also apply a downward force in that vicinity. The springs 52 of the seat of Fujita do not apply a force to the net 8 in a direction and at a location where a person applies a force when sitting. Rather, to the extent that the springs 52 of the seat of Fujita apply a force to the net 8 in a direction that a person applies a force when sitting, such force is not applied at the location where a person applies the force, but rather at a location rearward of the intersection between the seat portion of the net 8 and back portion of the net 8.

As Fujita fails to disclose or suggest the tension adjusting mechanism of claim 12, Fujita fails to disclose or suggest each and every feature of claim 12.

\* \* \* \*

As explained, claims 1 and 12 would not have been rendered obvious by Fujita and Granger. Claims 8 and 13-16 depend variously from claims 1 and 12 and, thus, also would not have been rendered obvious by Fujita and Granger. Accordingly, reconsideration and withdrawal of the rejection are respectfully requested.

D. Fujita and Nakane

The Office Action rejects claims 9 and 10 under 35 U.S.C. §103(a) over Fujita in view of U.S. Patent Application Publication No. 2001/0043002 to Nakane et al. ("Nakane"). Applicants respectfully traverse the rejection.

Claim 1

Fujita fails to disclose or suggest each and every feature of claim 1 for at least the reasons discussed above. Nakane does not remedy the deficiencies of Fujita. Nakane is cited for its alleged disclosure of a spring structure including torsion springs and hanger springs. See Office Action, page 11. However Nakane, like Fujita, fails to disclose or suggest the elastic supporting structure of claim 1. Accordingly, the combination of references fails to disclose or suggest each and every feature of claim 1.

\* \* \* \*

As explained, claim 1 would not have been rendered obvious by Fujita and Nakane. Claims 9 and 10 depend from claim 1 and, thus, also would not have been rendered obvious by Fujita and Nakane. Accordingly, reconsideration and withdrawal of the rejection are respectfully requested.

E. Fujita, Nakane and Granger

The Office Action rejects claim 11 under 35 U.S.C. §103(a) over Fujita in view of Nakane and Granger. Applicants respectfully traverse the rejection.

Claim 1

Fujita fails to disclose or suggest each and every feature of claim 1 for at least the reasons discussed above. Nakane and Granger do not remedy the deficiencies of Fujita. Nakane is cited for its alleged disclosure of a spring structure including torsion springs and hanger springs. *See* Office Action, page 11. Granger is cited for its alleged disclosure of a spring and plate structure. *See* Office Action, pages 11 to 12. However Nakane and Granger, like Fujita, fail to disclose or suggest the elastic supporting structure of claim 1. Accordingly, the combination of references fails to disclose or suggest each and every feature of claim 1.

\* \* \* \*

As explained, claim 1 would not have been rendered obvious by Fujita, Nakane and Granger. Claim 11 depends from claim 1 and, thus, also would not have been rendered obvious by Fujita, Nakane and Granger. Accordingly, reconsideration and withdrawal of the rejection are respectfully requested.

F. Fujita, Granger and Akizuki

The Office Action rejects claims 19-22 under 35 U.S.C. §103(a) over Fujita in view of Granger and U.S. Patent No. 5,490,718 to Akizuki et al. ("Akizuki"). Applicants respectfully traverse the rejection.

Claim 17

Fujita fails to disclose or suggest each and every feature of claim 17 for at least the reasons discussed above. Granger and Akizuki do not remedy the deficiencies of Fujita. Granger is cited for its alleged disclosure of a spring and plate structure. *See* Office Action, page 13. Akizuki is cited for its alleged disclosure of a rear rotatable member. *See* Office Action, page 12. However Granger and Akizuki, like Fujita fail to disclose or suggest the

tension adjusting mechanism of claim 17. Accordingly, the combination of references fails to disclose or suggest each and every feature of claim 17.

Claim 18

Claim 18 is not rejected over Fujita. Accordingly, to the extent that claim 22 depends from claim 18, the rejection is improper.

Claim 19

Fujita fails to disclose or suggest each and every feature of claim 19 for at least the reasons discussed above. Granger and Akizuki do not remedy the deficiencies of Fujita. Granger is cited for its alleged disclosure of a spring and plate structure. *See* Office Action, page 13. Akizuki is cited for its alleged disclosure of a rear rotatable member. *See* Office Action, page 12. However Granger and Akizuki, like Fujita fail to disclose or suggest the tension adjusting mechanism of claim 19. Accordingly, the combination of references fails to disclose or suggest each and every feature of claim 19.

\* \* \* \*

As explained, claims 17 and 19 would not have been rendered obvious by Fujita, Granger and Akizuki. Claims 20 and 21 depend from claim 19 and, thus, also would not have been rendered obvious by Fujita, Granger and Akizuki. To the extent that claim 22 depends from claims 17 and 19, claim 22 also would not have been rendered obvious by Fujita, Granger and Akizuki. Accordingly, reconsideration and withdrawal of the rejection are respectfully requested.

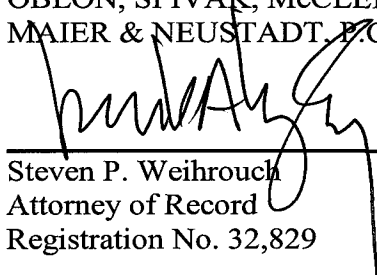


Conclusion

For the foregoing reasons, Applicants submit that claims 1-25 are in condition for allowance. Prompt reconsideration and allowance are respectfully requested.

Respectfully submitted,

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